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FOOD HABITS OF PRAIRIE DOGS

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INTRODUCTION

Much of the published information on the food and feeding habits of prairie dogs deals with their destructiveness to forage. For the most part these reports have been based on field observations, a method that does not tell the whole story with respect to the food. In order to supply part of the needed information this circular presents the results of laboratory examinations of 545 stomachs of 3 of the 5 species of North American prairie dogs—249 of the black-tailed (*Cynomys ludovicianus*), 169 of the white-tailed (*C. leucurus*), and 127 of the Gunnison (*C. gunnisoni*). No stomach material is available for the Utah prairie dog (*C. parvidens*), a species whose range is confined to the mountain valleys of central Utah, particularly in the Sevier River section, or for the Mexican species (*C. mexicanus*), which is found only in southeastern Coahuila and northern San Luis Potosi, Mexico.¹

As a group, prairie dogs may be known by the thick, fat body, which is more than 10 inches long, by the inconspicuous ears and short legs and tail, and by the habit of living in colonies on plains. A systematic account of the genus (*Cynomys*), which includes also information as to geographic distribution, economic relations, natural enemies, and other facts in the life history of these burrowing rodents, was published by the Biological Survey in 1916 as North American Fauna No. 40 (4).²

Prairie dogs are the direct competitors of sheep and cattle for forage on western range land. In 1919 Nelson (?) stated that they occupied over 100,000,000 acres of public and private lands. At an earlier date (1902) Merriam (6, pp. 258, 263), referring to these rodents as

¹ Grateful acknowledgment is made to W. W. Smith, who collected most of the stomachs used in this report and recorded pertinent data regarding the prevailing vegetation; to D. A. Spencer, who collected many stomachs of the Zuni variety of the Gunnison prairie dog along with environmental data; and to the following, who collected additional stomachs—R. C. Bailey, Vernon Bailey, E. A. Goldman, C. C. Sperry, and W. P. Taylor. Mr. Sperry also examined part of the Gunnison prairie dog stomachs.

² Italic numbers in parentheses refer to Literature Cited, p. 15.

"one of the most pernicious enemies to agriculture," estimated that the quantity of grass consumed by 32 prairie dogs equals that required by 1 sheep and that that eaten by 256 prairie dogs is sufficient to support 1 cow. Not only do these rodents strip the native vegetation from around their burrows, but the areas so denuded often become centers of weed infestation later. It is also claimed that horses, while running, step into the burrows, and break their legs.

BLACK-TAILED PRAIRIE DOG

DESCRIPTION, DISTRIBUTION, AND HABITAT

The black-tailed prairie dog (*Cynomys ludovicianus*) may be known by the dull cinnamon-buff or reddish color on the upper parts and sides and by the border of black or brownish on the terminal third of the tail. The adult is 14.5 to 16.5 inches long and weighs 2 to 3 pounds.

This species is found from the Transition to the Lower Sonoran Zone from northern Montana east to central North Dakota, eastern South Dakota, eastern Kansas, central Oklahoma, and central Texas, south to south-central Texas, northern Chihuahua, and Sonora, Mexico, and west to southwestern Texas, southeastern Arizona, southwestern to northeastern New Mexico, the foothills of eastern Colorado, northwestern Wyoming, and central Montana.³

As stated by Merriam (6, p. 258) the black-tailed prairie dog "loves sunshine and a dry atmosphere." It avoids woods, shrubbery, or other tall growth and is usually found in the short-grass type of grassland. Some of the dominant plants in the habitat from which the stomachs used in this study came are grama (*Bouteloua gracilis*), buffalo grass (*Buchloë dactyloides*), Russian-thistle (*Salsola pestifer*), bluegrasses (*Poa* spp.), pricklypear (*Opuntia* spp.), wheatgrasses (*Agropyron* spp.), winterfat (*Eurotia lanata*), saltbushes (*Atriplex* spp.), and sages (*Artemisia* spp.). This, like other species of prairie dog, does not require drinking water, as it can obtain sufficient moisture from its food.

FOOD HABITS

Of the 249 stomachs of black-tailed prairie dogs examined for the present study, 230 were collected in Montana (Billings, Bridger, Glendive, Newland), 14 in South Dakota (Buffalo Gap, Rapid City), 2 in Colorado (Broomfield), 1 in New Mexico (San Pedro), and 2 in Arizona (Seligman). Two stomachs were empty and so were not used in computing food percentages.

Table 1 presents many of the data obtained from the stomach analyses. Items belonging to the grass and goosefoot families have been segregated under the respective families, and subtotals have been computed for these groups. Of the remaining identified plant items only those totaling as much as 1 percent of the annual diet have been listed individually; the others have been grouped under the caption, "Miscellaneous herbage and seeds."

It will be noted from table 1 that vegetable material comprised 98.60 and animal matter but 1.40 percent of the food. In the vegetable part, 57 specific items were found, mostly in the form of leaves, stems, and roots. Fruits and seeds contributed only about 7 percent of the diet.

³ Two geographic races have been recognized—the black-tailed prairie dog (*C. ludovicianus ludovicianus*), found throughout the northerly part of the above range south to central New Mexico and southwestern Texas; and the Arizona prairie dog (*C. l. arizonensis*), occupying the remainder of the range.

PLANTS IMPORTANT AS FORAGE OR CROPS

Herbage of more or less value to cattle and sheep constituted 76.19 percent of the total food of the black-tailed prairie dog.

Green and growing grasses (61.55 percent) were the favorite food. Naturally, the seasonal availability of such food led to its greater consumption during the summer months. Wheatgrasses (11.54 percent) were preferred, with fescue ranking second (8.83 percent).

Near Aurora, Colo., the writer has seen black-tailed prairie dogs feeding to a great extent on rhizomes and stem bases of blue grama (*Bouteloua gracilis*) on warmer winter days. Patches of this grass near their burrows were littered with broken-off stems and leaves roughed up as if they had been gone over with a rake. In summer six weeks fescue (*Festuca octoflora*) and bluestem (*Agropyron smithii*) were preferred.

Bailey (1, p. 440) reported that in Montana these prairie dogs fed mostly on buffalo grass but that in their excrement he found traces of nearly every other plant that grew near, particularly *Artemisia frigida*, "knot-grass" (*Polygonum* sp.), and a small aster that is full of seeds. He too noted the tendency of these rodents to eat the stem bases of grasses, for he stated that in feeding on buffalo grass they "seem to eat the bottom part, for the ground is covered in places with the leaves and roots." The fact that buffalo grass is now much less abundant on the Plains than at that time probably accounts for the low percentage (0.27) it formed of the food of the specimens examined for this report.

Cates (3), studying a young captive prairie dog of this species in Montana reported that at first it preferred green herbage, but when older, ripe or dry vegetable matter. It took oats above all other items but would eat a little of almost any vegetable substance.

In this study succulent plants of the goosefoot family (12.73 percent) ranked next to the grasses in importance. Consumption of these plants was highest in fall and winter, when grasses were scarce, and in early spring, when the plants themselves were softer and more palatable. Russian-thistle (6.84 percent), abundant about the colonies, was eaten more than other species of the family. The softer green seedlings of this plant were preferred, but if these were lacking, the old, dried stems and spine-tipped leaves were freely taken. Salt-bushes (4.03 percent), which ranked second in importance of the Chenopodiaceae, and winterfat (1.09 percent) were preferred in the colder months. The minute quantity of goosefoots (*Chenopodium* spp.) eaten was probably due to their absence in the localities where the stomachs were collected. In Colorado the writer has found this genus lacking within the feeding territory of colonies but common outside. The earth about the nesting holes of burrowing owls (*Speotyto cunicularia hypugaea*) in the center of prairie dog towns also was found covered with *Chenopodium*, as the rodents shunned these particular sections.

Leaves and stems of sage (1.70 percent) were also eaten in winter and early spring, when other foods were less available, but it is likely that sage is less palatable to the prairie dogs than cacti (*Opuntia* spp.), as the latter, although not more abundant, were eaten in over three times as great a quantity (5.98 percent).

TABLE 1.—Volume percentages, by months, of food items found in stomachs of 247 black-tailed prairie dogs (*Cynomys ludovicianus*), with ratings as to forage value¹

Food items	Forage value for— ¹		January	February	March	April	May	June	July	August	September	October	November	December	Total
	Cattle and horses	Sheep and goats	Number Percent	Number Percent	Number Percent	Number Percent	Number Percent	Number Percent	Number Percent	Number Percent	Number Percent	Number Percent	Number Percent	Number Percent	Number Percent
Stomachs used.....			Number 17 Percent 5.70	Number 18 Percent 15.83	Number 17 Percent 27.03	Number 20 Percent 7.50	Number 20 Percent 18.30	Number 21 Percent 8.95	Number 21 Percent 19.61	Number 20 Percent 16.00	Number 24 Percent (?)	Number 18 Percent 10.94	Number 32 Percent 6.87	Number 19 Percent 1.73	Number 247 Percent 11.54
VEGETABLE FOOD															
Grass family (Gramineae):															
Wheatgrass (<i>Agropyron</i> spp.)	Good	Fair													
Fescue (<i>Festuca</i> spp., chiefly <i>F. octo-</i>	Good-poor	Fair-poor													
<i>flora</i>)															
Bluegrass (<i>Poa</i> spp., chiefly <i>P.</i>	Fair	Fair													
<i>secunda</i>)															
Barley (<i>Hordeum</i> spp., chiefly	Poor	Poor													
<i>pusillum</i>)	Good	Fair													
Gram (<i>Bouteloua</i> spp.)	(?)	(?)													
Wheat (<i>Triticum</i> spp.)	Good	Fair													
Bromegrass (<i>Bromus</i> spp.)	Good	do.													
Oats (<i>Avena</i> spp., chiefly <i>A. sativa</i>)	do.	do.													
Buffalo grass (<i>Buchloe dactyloides</i>)	Unidentified														
Unidentified															
Total			47.67	47.11	54.95	63.80	65.05	87.54	72.42	78.30	38.17	37.00	48.74	29.75	31.12
Goosefoot family (Chenopodiaceae):															
Russian-thistle (<i>Salsola pestifer</i>)	Poor	Poor													
Saltbush (<i>Atriplex</i> spp.)	Fair	Good													
Winterfat (<i>Barbarea lupulina</i>)	do.	do.													
Monolepis (<i>Monolepis nuditaliana</i>)	do.	do.													
Greasewood (<i>Sarcobatus vermicula-</i>	Poor	Poor													
<i>tus</i>)	Fair	Good													
Goosefoot (<i>Chenopodium</i> spp.)															
Unidentified															
Total			7.35	31.54	2.69	12.55	10.25	.47	3.57	.60	2.25	36.82	14.92	29.77	12.73
Cactus family (Cactaceae):															
Pricklypear (<i>Opuntia</i> spp.)	Poor	Poor													
Total			13.23	6.22	12.64	.25	4.20		3.19	.70	2.75		3.25	25.36	5.98

[illegible]

Forage-value ratings supplied by Division of Range Management, U. S. Forest Service.

Trace.

3 Of crop value only.

⁴ *A. sativa* of crop value only.

PLANTS UNIMPORTANT AS FORAGE OR CROPS

Plants that are unimportant as forage or crops comprised 22.41 percent of the food of the black-tailed prairie dog. Although Lantz (5, p. 352) stated that prairie dogs of this species were very fond of wild onions of the prairies, those examined for this study had eaten only a small percentage of this item. Stomachs of animals collected near Rapid City, S. Dak., contained as many as 20,000 seeds of knotweed (*Polygonum aviculare*), a noxious weed. Two animals from near Billings, Mont., had eaten roots of the bitterroot (*Lewisia rediviva*). Basal leaves of mustards, particularly the double bladderpod, were eaten in every month except July. Joints, fruits, seeds, and even sharp spines of pricklypear (chiefly *Opuntia polyacantha*) were eaten in every month except June and October, the percentages being small in summer and larger in winter. This plant holds considerable moisture but was probably eaten mainly on account of shortage of other foods. Two stomachs collected near Billings, Mont., in March contained 70 and 60 percent, respectively, of locoweeds (*Astragalus* sp.) which are poisonous to cattle, and lupines (*Lupinus* sp.). In winter months these plants were eaten sparingly.

In the vicinity of Denver and elsewhere in Colorado the writer has noted small colonies devouring plants and occupying areas quite unsuitable for cattle. They were seen feeding extensively on young branches of a species of rabbitbrush (*Chrysothamnus platensis*), a plant the cattle would not touch.

Some plants are so little desired as food by this prairie dog that they are left alone or are taken very sparingly, and so stand out as noticeable floral features of their colonies. Among these are red three-awn (*Aristida longiseta*), Fendler three-awn (*A. fendleriana*), nightshade (*Solanum triflorum*), and gumplant (*Grindelia squarrosa*). The only one of these found in the stomachs examined was nightshade, a plant poisonous to cattle.

ANIMAL FOOD

Smith (8, p. 7), writing of a grasshopper outbreak in New Mexico, noted that prairie dogs killed many of these pests. Whitehead (11) reported that in the Panhandle of Texas prairie dogs feasted on a swarm of grasshoppers that alighted in their colony. They even leaped into the air to capture this prey, uttering their characteristic bark as they did so.

In these analyses, 23 specific animal items were found, usually in low percentages or as traces. However, in 14 out of 20 stomachs collected in May near Billings, Mont., cutworms (Noctuidae) were found, ranging in numbers from 1 to 600 and comprising from a trace to 35 percent of the food in single stomachs. Although not chewed to any extent, the larvae usually were torn open at the side, so that the alimentary tract projected. Other animal items found, each constituting less than 1 percent of the food, were spiders (Arachnida), short-horned grasshoppers (Acrididae), bugs (Heteroptera and Homoptera), cicadas (Cicadidae), ground beetles (Carabidae), leaf beetles (Chrysomelidae), weevils (Curculionidae), and robber flies (Asilidae).

SUMMARY

Herbage of some value to livestock comprised 76.19 percent and that of little or no value for grazing 22.41 percent of the food of the black-tailed prairie dog. Plants of the grass family predominated in the annual food, comprising 61.55 percent, and those of the goosefoot family were second, totaling 12.73 percent. Of the valuable forage plants, wheatgrasses were eaten in greatest quantity and fescue next. Animal matter, mostly cutworms eaten during the spring months, furnished 1.40 percent of the food.

WHITE-TAILED PRAIRIE DOG

DESCRIPTION, DISTRIBUTION, AND HABITAT

The white-tailed prairie dog (*Cynomys leucurus*), of which no sub-specific forms have been recognized, differs from the black-tailed in having the tail mainly white and the general color a paler shade of buff and from the Gunnison in having more white in the tail and in lacking a grayish center to the tail. When full grown it is 13.5 to 14.8 inches long.

This species is found from the Transition to the Upper Sonoran Zone from the Bighorn Basin in southern Montana east to Laramie Mountains, Wyo., and North Park, Colo., south to the lower Gunnison Valley, Colo., and west to the Green River Valley and across the Bear River Divide in northeastern Utah.

The white-tailed prairie dog dwells in rougher, more mountainous country than the black-tailed, and the vegetation in its habitat differs from that in the environment of the black-tailed in that blue grama and buffalo grass are less prominent and shrubs, particularly saltbushes, are more common.

FOOD HABITS

Stockard (9, p. 476), reporting on the analyses of 92 stomachs of white-tailed prairie dogs collected near Laramie, Wyo., in spring, found weed and grass seeds, cactus roots and stems, moss, sage leaves, grass, and insects. He stated that "dry vegetation and cactus roots predominated as food at this time, but the animals turn to green food as soon as it appears." This is the only previous work on the food habits of the species.

Table 2 presents much of the detailed information concerning the food of the white-tailed prairie dog as disclosed by the analyses of 169 stomachs, of which 153 were collected in Montana (Bridger, Billings) and 16 in Wyoming (Green River, Fort Bridger, Cody, Frannie), most of them in the vicinity of Bridger.

That this rodent is preeminently vegetarian is revealed by the fact that 99.14 percent of its food was obtained from the plant kingdom and only 0.86 percent from the animal. The 59 specific vegetable items identified were mostly fragments of leaves, stems, and roots. Fruits and seeds comprised about 5 percent. Thus, the percentage of herbage consumed was slightly greater than for the black-tailed species.

[illegible]

¹ Forage value ratings supplied by Division of Range Management, Forest Service.

2 Trace.

3 Chiefly *P. secunda*.

4 13.94 percent Canby bluegrass (*P. canbyi*); rest chiefly *P. secunda*.

⁵ Of crop value only.⁶ *H. vulgare*; of crop value only.*H. pusillum.*

PLANTS IMPORTANT AS FORAGE OR CROPS

Plants of some value as forage comprised 83.97 percent of the food of the white-tailed prairie dog. In contrast with the food of the black-tailed species, plants of the goosefoot family predominated (50.63 percent) and grasses, so attractive to the former, were less conspicuous (28.09 percent). The bulk of the goosefoot plants exceeded that of the grasses in every month except April, July, August, and October. According to notes submitted by W. W. Smith, plants of the goosefoot family were usually common in the sections where the stomachs were collected. Whether their predominance in the food is due to their abundance or to the preference of the animal can only be determined by local study.

In the goosefoot part of the diet, saltbushes, particularly the Nuttall saltbush (*Atriplex nuttallii*), were by far the largest item (42.60 percent). Russian-thistle was second (6.62 percent). The remaining items constituted less than 1 percent each.

In the grass part of the diet, wheatgrasses (11.02 percent) were favored. Grama was represented by a greater percentage than in the food of the blacktail (2.04 as against 1.81) and fescue by a smaller (0.39 as against 8.83). Buffalo grass did not occur in the stomachs.

Leaves of species of sage were eaten in larger quantity than by the blacktail (5.07 as against 1.70 percent.)

PLANTS UNIMPORTANT AS FORAGE OR CROPS

Plants unimportant as forage or crops comprised 15.17 percent of the food of the whitetail. Bulbs of wild onions were relished in the summer months, particularly in August, when they furnished 32.80 percent of the food. This species took much less pricklypear than the blacktail (1.88 as against 5.98 percent) and unlike the latter took it in appreciable quantities only in February, March, and September. The false mallow, a weed locally common on the ranges, was eaten from May to September, in smaller quantities than by the blacktail (1.08 as against 1.97 percent).

ANIMAL FOOD

Stockard (9, p. 476) found numerous insects in the stomachs of white-tailed prairie dogs throughout the spring, 100 beetles in 1. In a letter to the Biological Survey, Mrs. Fred Jackson, of Baggs, Wyo., reported that during the summer of 1935 she saw these animals killing and carrying off young chicks.

In the present analyses, 18 specific animal foods were found, comprising less of the total diet than for the black-tailed species (0.86 as against 1.40 percent). Cutworms (Noctuidae) (0.71 as against 1.13 percent) were found in 15 out of 20 July stomachs, in numbers ranging from 1 to 420, and formed as much as 25 percent of individual stomach contents. Other animal items, occurring in the food usually as traces, were short-horned grasshoppers (Acrididae, including *Melanoplus bivittatus*); long-horned grasshoppers (Tettigoniidae); click beetles (Elateridae); ladybird beetles (*Hippodamia* sp.); darkling ground beetles (*Tenebrionidae*); tiger beetles (Cicindelidae); and ants (*Ischnomyrmex* sp. and *Myrmica rubra*).

SUMMARY

Plants of some value as forage comprised 83.97 percent and those of little or no value for grazing 15.17 percent of the food of 169 white-

tailed prairie dogs. Plants of the goosefoot family had the highest percentage of any group (50.63); those of the grass family, the next (28.09). Saltbushes formed the largest single item of food (42.60 percent). Animal matter, mostly caterpillars, comprised 0.86 percent.

GUNNISON PRAIRIE DOG

DESCRIPTION, DISTRIBUTION, AND HABITAT

The Gunnison prairie dog (*Cynomys gunnisoni*) differs from the black-tailed in having the tail mixed with white and the body a paler shade of buff and from the white-tailed in having the tail mixed with black or brown instead of being entirely white. When full grown it is 12.2 to 14.6 inches long and weighs 1.5 pounds or more.

This species is found from the lower part of the Canadian to the Upper Sonoran Zones. It occurs from South Park and the Leadville district of Colorado east to El Paso, Fremont, Custer, Huerfano, and Costilla Counties, Colo., south to Sierra and Socorro Counties, N. Mex., and south-central Arizona, and west to Prescott and the Hualpai Indian Reservation, Ariz., and southeastern Utah.⁴

The environment of the Gunnison prairie dog is very similar to that of the white-tailed.

FOOD HABITS

The statistical data concerning the food of the Gunnison prairie dog are presented in table 3. Of the 127 stomachs examined, 41 were collected in Colorado (Nucal, Norwood, Redvale), 3 in New Mexico (San Pedro, Albuquerque), and 83 in Arizona (Seligman). No stomachs were available for the period October through March.

TABLE 3.—Volume percentages, by months, of food items found in stomachs of 127 Gunnison prairie dogs (*Cynomys gunnisoni*), with ratings as to forage value¹

Food items	Forage value for 1—		April	May	June	July	August	September	Total
	Cattle and horses	Sheep and goats							
Stomachs used-----			Number 25	Number 36	Number 14	Number 3	Number 6	Number 43	Number 127
VEGETABLE FOOD			Percent	Percent	Percent	Percent	Percent	Percent	Percent
Grass family (Gramineae):									
Three-awn (<i>Aristida</i> spp., chiefly <i>A. fendleriana</i>)	Poor----	Poor----	23.92	5.38	2.49	-----	-----	0.83	5.44
Wheatgrass (<i>Agropyron</i> spp.)	Good----	Fair----	-----	4.16	9.85	-----	-----	-----	2.34
Grass (<i>Hilaria</i> spp.)-----	Fair----	do-----	2 2.96	3 3.16	-----	-----	-----	-----	1.02
Junegrass (<i>Koeleria cristata</i>)	Good----	do-----	-----	3.63	-----	-----	-----	-----	.61
Oats (<i>Avena</i> spp., chiefly <i>A. sativa</i>)	do 4-----	do 4-----	1.60	.69	-----	-----	-----	-----	.38
Wheat (<i>Triticum aestivum</i>)	(5)-----	(5)-----	2.20	.02	-----	-----	-----	-----	.37
Bluegrass (<i>Poa</i> spp., chiefly <i>P. pratensis</i>)	Fair----	Fair----	(5)	.83	.21	-----	-----	-----	.17
Orchard grass (<i>Dactylis glomerata</i>)	Good----	do-----	-----	.97	-----	-----	-----	-----	.16
Barley (<i>Hordeum</i> sp.)-----	Poor----	Poor----	.20	-----	-----	-----	-----	-----	.03
Bentgrass (<i>Agrostis</i> sp.)-----	Good----	Fair----	-----	-----	-----	-----	-----	(5)	(5)
Grama (<i>Bouteloua</i> spp.)-----	do-----	do-----	(5)	-----	(5)	-----	-----	(5)	(5)
Indian ricegrass (<i>Oryzopsis hymenoides</i>)	do-----	do-----	-----	-----	(5)	-----	-----	-----	(5)

For footnotes, see end of table.

⁴ Two geographic races have been recognized—the Gunnison prairie dog (*C. gunnisoni gunnisoni*), found in the northern and eastern parts of the above range south to the Sangre de Cristo and Jemez Mountains, N. Mex., west to Rio Arriba County, N. Mex., and western Gunnison and Hinsdale Counties, Colo., and the Zuni prairie dog (*C. g. zuniensis*), occupying the remainder of the range.

TABLE 3.—*Volume percentages, by months, of food items found in stomachs of 127 Gunnison prairie dogs (Cynomys gunnisoni), with ratings as to forage value*—
Continued

Food items	Forage value for—		April	May	June	July	August	September	Total
	Cattle and horses	Sheep and goats							
VEGETABLE FOOD—continued									
Grass family—Continued.									
Dropseed (<i>Sporobolus</i> spp.)	do	do	Per cent (%)	Per cent	Per cent	Per cent	Per cent	Per cent (%)	Per cent (%)
Unidentified			26.64	22.71	20.37	91.66	32.51	26.58	36.75
Total			57.52	41.55	32.92	91.66	32.51	27.41	47.26
Goosefoot family (<i>Chenopodiaceae</i>):									
Russian-thistle (<i>Salsola pestifer</i>).	Poor	Poor	3.04	9.36	9.14		15.00	29.36	10.99
Greasewood (<i>Sarcobatus vermiculatus</i>).	do	do			(%)			15.74	2.62
Saltbush (<i>Atriplex</i> spp.)	Fair	Good	(%)	.13					.02
Monolepis (<i>Monolepis nuttalliana</i>).	do	do		.08	(%)				.01
Goosefoot (<i>Chenopodium</i> spp.)	do	do						.04	(%)
Unidentified								.93	.16
Total			3.04	9.57	9.14		15.00	46.07	13.80
Composite family (<i>Compositae</i>):									
Dandelion (<i>Taraxacum officinale</i>).	Good	Good	18.00	27.55	17.64				10.54
Thistle (<i>Cirsium</i> sp.)	Poor	Poor	1.28		6.78				1.34
Unidentified			.16	1.69	4.57			.95	1.23
Total			19.44	29.24	28.99			.95	13.11
Nightshade family (<i>Solanaceae</i>):									
Nightshade (<i>Solanum</i> spp., chiefly <i>S. triflorum</i>).	Poisonous.	Poisonous (?)	6.60	4.88	10.21			4.79	4.41
Mallow family (<i>Malvaceae</i>):									
False mallow (<i>Malvastrum coccineum</i>)	Poor	Fair	2.60	.55	.14				.55
Unidentified							13.33		2.22
Total			2.60	.55	.14		13.33		2.77
Pea family (<i>Leguminosae</i>):									
Alfalfa (<i>Medicago sativa</i>)	(s)	(s)	2.28	3.61					.98
Scurf-pea (<i>Psoralea</i> sp.)	Poor	Poor	.60						.10
Sweetclover (<i>Melilotus</i> sp.)	Good	Good	.20	.27					.08
Unidentified			3.80	(%)	(%)				.63
Total			6.88	3.88	(%)				1.79
Polemonium family (<i>Polemoniaceae</i>):									
Small-flowered microsteris (<i>Microsteris micrantha</i>).	Poor	Poor		.27	7.85				1.35
Buckwheat family (<i>Polygonaceae</i>):									
Eriogonum (<i>Eriogonum</i> spp.)	do	Fair	2.04	.91	1.14			3.62	1.29
Undetermined herbage			(%)	1.66	(%)	8.34	5.00	1.86	2.81
Miscellaneous herbage and seeds.			1.80	7.16	8.40	(%)	5.00	14.10	6.08
Total vegetable food			99.92	99.67	98.79	100.00	70.84	98.80	94.67
ANIMAL FOOD									
Caterpillars (<i>Datana</i> sp.)							16.67		2.78
Short-horned grasshoppers (<i>Acrididae</i>).			(%)				11.56	.54	2.03
Miscellaneous			.08	.33	1.21	(%)	.83	.66	.52
Total animal food			.08	.33	1.21	(%)	29.16	1.20	5.33

¹ Forage value ratings supplied by Division of Range Management, Forest Service.² Galleta (*H. jameisii*).³ Tobosa grass (*H. mutica*).⁴ *A. sativa* of crop value only.⁵ Of crop value only.⁶ Trace.

Results are not comparable with those of the two preceding species, inasmuch as only half the year is represented. It may be noted, however, that vegetable matter comprised less of the food (94.67 percent) than for the other two species and animal matter more (5.33 percent). At least 62 specific vegetable items were detected. They appeared largely as leaves, stems, or roots. Fruits and seeds aggregated only about 10 percent of the bulk.

PLANTS IMPORTANT AS FORAGE OR CROPS

Plants of value as forage or crops made up 74.80 percent of the food of the Gunnison prairie dog. As in the case of the black-tailed species, plants of the grass family were of greatest importance (47.26 percent) and those of the goosefoot family second (13.80 percent). This is in keeping with the results of field studies of Taylor and Loftfield (10), who in Arizona made a 4-year experimental study near Coconino and a 1-year study near Williams of the feeding of the Zuni form of the Gunnison prairie dog. The first area was in a tall-grass and the second in a short-grass habitat. On the Coconino area this prairie dog destroyed 69 percent of the bluestem (*Agropyron smithii*) and 99 percent of the sand dropseed (*Sporobolus cryptandrus*), or about 80 percent of the possible yearly production of forage; and on the Williams area, 83 percent of the blue grama crop, the most important forage grass of the region. The men observed also (10, p. 13) that at Seligman, Ariz., the Zuni prairie dog would not eat Russian-thistle when the plant was old and tough. The present examinations show, however, that it will occasionally do so, as will the two other species studied.

In Colorado, Burnett and McCampbell (2) made extensive observations of the feeding habits of the Zuni prairie dog near Cortez, Montezuma County. They found that it showed a greater preference for herbage and seed of cultivated grain than do other species of prairie dogs. Many grasses were eaten, as well as varying amounts of salt-bush (*Atriplex powellii*), greasewood, Russian-thistle, sage (*Artemisia frigida* and *A. trifida*), prairie sunflower (*Helianthus petiolaris*), false mallow, wild pea (*Lathyrus* sp.), *Ximenesia exauriculata*, *Eriogonum* sp., *Senecio* sp., and *Cymopterus* sp. They found (2, p. 8) that young prairie dogs began feeding on a little green herbage about the second day after their first appearance above ground and that about 3 weeks later they were feeding wholly on green food.

The Gunnison prairie dog consumed more heads and leaves of dandelion than did the black-tailed and the white-tailed species (10.54 as against 0.51 and 0.02 percent, respectively), probably because this food was more available.

PLANTS UNIMPORTANT AS FORAGE OR CROPS

Although it is generally thought that prairie dogs have no beneficial food habits, present data show that they do feed on some poisonous and worthless weeds. Of the 19.87 percent that plants unimportant as forage or crops formed of the food of the Gunnison prairie dog, the nightshades, which are poisonous to cattle, were taken in greatest quantity, aggregating 4.41 percent. Cacti were eaten only in September, making an average of 0.31 percent for the 6-month period. It is likely that more would have been found in winter stomachs if such had been available.

ANIMAL FOOD

Burnett and McCampbell (2) noted that in May Zuni prairie dogs dug for cutworms daily, usually from 7 to 9 a. m., and that the worms were pulled apart as eaten and in most cases were well chewed. They saw these rodents pursuing other insects also, and they found elytra of beetles in the stomachs and in one stomach 39 carabid beetle larvae.

The present study disclosed 36 specific animal items in the food of the Gunnison prairie dog for the 6-month period. Short-horned grasshoppers (Acrididae) comprised 2.03 percent of the food. Caterpillars of the genus *Datana* were found in 2 of 6 stomachs collected in August, 1 of which contained the remains of fully 100 caterpillars that formed nearly half the food. Other cutworms (Noctuidae) were found in the April, May, and June food but comprised less than 1 percent of the total. The remaining items (less than 1 percent each) included bugs (Heteroptera), tiger beetles (*Cicindela* sp.), ground beetles (Carabidae), nine-spotted ladybugs (*Coccinella novemnotata*), darkling ground beetles (Tenebrionidae), June beetles (*Diplotaxis* sp. and *Phyllophaga* sp.), weevils (*Baris* sp., *Cleonus* sp., *Lirus* sp., and *Ophryastes* sp.), and ants (*Lasius* sp., *Myrmica* sp., and *Solenopsis* sp.). The large quantity of animal matter eaten in August, which made the total average higher than for other species, may have been due to unusual conditions.

SUMMARY

Plants of some value as forage or crops comprised 74.80 percent and those of little or no such value 19.87 percent of the food of the Gunnison prairie dog. Although Russian-thistle (10.99 percent) and dandelion (10.54 percent) were the principal specific food items identified, grasses were the most important group, aggregating 47.26 percent of the sustenance. The goosefoot family was second, with 13.80 percent. Animal matter, mostly caterpillars and grasshoppers, made up only 5.33 percent of the food.

GENERAL SUMMARY

The results of the laboratory analyses of the stomachs of 247 black-tailed, 169 white-tailed, and 127 Gunnison prairie dogs corroborated the general belief that these rodents feed almost entirely on vegetation, as 97.47 percent of the total food of the 3 species was derived from plants (table 4). The examinations also brought out the fact that roots, stems, and leaves predominate over seeds and fruits in the diet of the prairie dog to a greater extent than is the case with most other rodents.

TABLE 4.—Food, by volume percentages, grouped to show principal food-habit tendencies of 3 species of prairie dogs

Species	Stomachs used	Vegetable food	Animal food	Plants valuable as forage or crops	Plants not valuable as forage or crops	Grass family (Gramineae)	Goosefoot family (Chenopodiaceae)
	Number	Percent	Percent	Percent	Percent	Percent	Percent
Black-tailed (<i>Cynomys ludovicianus</i>).....	247	98.60	1.40	76.19	22.41	61.55	12.73
White-tailed (<i>C. leucurus</i>).....	169	99.14	.86	83.97	15.17	28.09	50.63
Gunnison (<i>C. gunnisoni</i>).....	127	94.67	5.33	74.80	19.87	47.26	13.80
Total or average.....	543	97.47	2.53	78.32	19.15	45.63	25.72

Contrary to what has been generally supposed, plants of forage or crop value were not the only ones eaten by the prairie dogs. They did, however, average 78.32 percent of the food of the three species, whereas vegetation unimportant as forage or crops averaged 19.15 percent. It should also be noted that sages (*Artemisia* spp.) and some other plants furnishing prairie dog food are eaten by cattle only when young and tender or when more palatable foods are scarce.

Plants of the grass family (45.63 percent) predominated in the food of the three species less than had been expected from field observations and experimental studies. Wheatgrasses (*Agropyron* spp.) averaged highest. The quantity of cereals found in the stomachs was small, indicating, no doubt, that only a few of the stomachs came from the vicinity of cultivated areas.

Plants of the goosefoot family ranked second as food, averaging a little more than a fourth (25.72 percent) of the food of the three species, although constituting more than half (50.63 percent) that of the white-tail. They were more freely eaten in winter, when there was a shortage of grasses. Salthushes (*Atriplex* spp.) and Russian-thistle (*Salsola pestifer*), in both tender and tough condition, were particularly favored.

Of the many other plant families represented in the food, none had a high yearly percentage. Most of them, in addition to being of no value as forage, are troublesome weeds. A few, including the nightshades (*Solanum* spp.) and locoweeds (*Astragalus* spp. and *Aragallus* spp.), are poisonous to cattle.

The small quantity of animal matter eaten by the three species (2.53 percent) consisted mostly of cutworms and grasshoppers, although other forms of insect life were taken, some, no doubt, having been swallowed accidentally with vegetable food.

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